

Listing of Claims

1. (Withdrawn) A composition comprising a molecule that inhibits nuclear envelope breakdown.
2. (Withdrawn) The composition of claim 1, wherein the molecule is not nocodazole, p50/dynamitin, or p62.
3. (Withdrawn) The composition of claim 1, wherein the molecule does not arrest cell cycle prior to nuclear envelope breakdown.
- 4-10. (Cancelled)
11. (Withdrawn) The composition of claim 1, wherein the composition binds a peptide, wherein the peptide comprises a sequence having at least 47% identity to amino acids 658 to 891 of SEQ ID NO: 2.
12. – 13. (Cancelled)
14. (Withdrawn) The composition of claim 1, wherein the molecule is an antibody.
15. – 23 (Cancelled)
24. (Withdrawn) The composition of claim 1, wherein the molecule comprises a peptide such as a protein variant, a chimeric protein or a related derivative.
25. (Withdrawn) The composition of claim 1, wherein the molecule is a small molecule.

26. (Withdrawn) The composition of claim 25, wherein the small molecule comprises Brefeldin A.
27. (Withdrawn) The composition of claim 1, wherein the molecule is an aptamer.
28. (Withdrawn) A method of identifying a compound that inhibits nuclear envelope breakdown, comprising adding the compound to a system wherein the system comprises Nup153 and COPI, wherein Nup153 and COPI can form a complex, and assaying for a molecule that decreases the amount of complex formed compared to the amount of complex formed in the absence of the compound.
29. -33 (Cancelled)
34. (Withdrawn) A method of identifying and producing a compound, the method comprising bringing into contact a test compound and Nup153;
assessing the activity of Nup153;
comparing the activity of Nup153 when exposed to the test compound to activity of Nup153 in the absence of the test compound;
wherein inhibition of Nup153 when exposed to the test compound identifies the test compound;
and producing the identified test compound.
35. – 39. (Cancelled)
40. (Withdrawn) A method of identifying and producing a compound, the method comprising bringing into contact a test compound and Nup358/RanBP2;
assessing the activity of Nup358/RanBP2;
comparing the activity of Nup358/RanBP2 3 when exposed to the test compound to activity of Nup153 in the absence of the test compound;

wherein inhibition of Nup153 when exposed to the test compound identifies the test compound;
and producing the identified test compound.

41. – 45. (Cancelled)

46. (Withdrawn) A method of producing an antibody comprising, administering a region of Nup153 to an animal.

47. – 48. (Cancelled)

49. (Withdrawn) A method of using the antibody of claim 46, the method comprising administering the antibody to an animal.

50. (Previously Presented) A method of inhibiting a cell cycle of a cell comprising administering a Nup153 inhibitor to the cell, wherein the Nup153 inhibitor inhibits the cell cycle of the cell.

51. (Withdrawn) A method of identifying proteins that interact with Nup153 comprising operably linking Nup153 or a fragment of Nup153 to a DNA binding domain forming a first nucleic acid, transfecting a cell with the first nucleic acid, wherein the cell comprises a protein or protein fragment which is operably linked to a transcription activation domain, wherein the cell comprises a reporter system specific for the DNA binding domain, assaying the amount of expression from the reporter system, wherein an increase in expression indicates an interaction between the Nup153 or Nup153 fragment and the protein or protein fragment.

52. (Cancelled)

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53. (Withdrawn) A system for assaying nuclear breakdown comprising Nup153, further comprising COPI, and further comprising a *Xenopus laevis* egg extract.

54. – 56. (Cancelled)

57. (Withdrawn) A method of evaluating expression of Nup153, comprising contacting cells undergoing mitosis with a probe for Nup153; detecting expression of Nup153.

58. (Cancelled)

59. (Withdrawn) A method of inhibiting nuclear envelope breakdown, comprising contacting a cell with the compound from claim 1.

60. – 61. (Cancelled)

62. (Withdrawn) A method of treating a subject with cancer, comprising administering to the subject an effective amount of a compound that inhibits nuclear envelope breakdown.

63. (Cancelled)

64. (Previously Presented) The method of claim 50, wherein the cell cycle is inhibited so that the cell does not proceed through cell division.

65. (Previously Presented) The method of claim 64, wherein the cell does not undergo mitosis.

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66. (Previously Presented) The method of claim 64, wherein the cell cycle is inhibited during interphase.
67. (Previously Presented) The method of claim 50, wherein the cell is a cancer cell.
- 68-73. (Cancelled).
74. (Previously Presented) The method of claim 50, wherein the Nup153 inhibitor comprises SEQ ID NO: 30.
75. (Previously Presented) The method of claim 50, wherein the cell is in a subject.
76. (Previously Presented) The method of claim 74, wherein the subject has cancer.